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Magnetic resonance line profile in thin superconducting films

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Abstract

Solutions of the modified London equations are derived for a vortex lattice in a thin film from high-temperature superconductors. The nuclear magnetic resonance line profile in the thin film from high-temperature superconductors of different thicknesses d is calculated with allowance for variable inhomogeneity of the local magnetic field of the vortex lattice. It is demonstrated that the nuclear magnetic resonance line profile changes significantly with d, which can give additional information on the superconductor parameters (including the symmetry type of the vortex lattice and the anisotropy parameter Γ).

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